

8.0 ENVIRONMENTAL FACTORS

8.1 HABITAT

The bay scallop, unlike most estuarine species, is very habitat specific in its distribution, occurring almost exclusively in high salinity beds of SAV, also referred to as seagrass beds (Thayer et al. 1984). Bay scallops are dependent on an appropriate substrate for spat settlement. Although juveniles attach to other structures, such as oyster shell, self-sustaining populations of bay scallops are primarily found in seagrass beds (Kirby-Smith 1970; Thayer and Stuart 1974; Fay et al. 1983). Other habitats that directly or indirectly support bay scallop populations include wetlands, shell bottom, soft bottom, and water column. Much of the information in this section was derived from portions of the North Carolina Coastal Habitat Protection Plan (CHPP) (Street et al. 2005).

Submerged Aquatic Vegetation

Submerged aquatic vegetation is defined in the CHPP as “bottom recurrently vegetated by living structures of submerged, rooted vascular plants (roots, rhizomes, leaves, stems, or propagules), as well as temporarily unvegetated areas between vegetated patches” (Street et al. 2005). Submerged aquatic vegetation occurs in both subtidal and intertidal zones and may be colonized by estuarine species, such as eelgrass (*Zostera marina*), shoalgrass (*Halodule wrightii*), or widgeon grass (*Ruppia maritima*) or freshwater species, such as wild celery (*Vallisneria americana*) and sago pondweed (*Potamogeton pectinatus*). Under MFC rules, SAV is a Critical Habitat Area [MFC rule 15A NCAC 03I .0100 (b)(20)]. Only high salinity grassbeds are utilized by bay scallops due to their salinity preferences.

It is well established in the scientific literature that SAV is a valuable habitat for many fishery species in North Carolina, including bay scallop. Between 1984 and 1989, DMF sampling documented over 150 species of fish and invertebrates and at least 49 adult fish species in seagrass beds in eastern Pamlico and Core sounds, of which 34 fish and six invertebrate species were important commercial species (DMF 1990). In addition to finfish, over 70 benthic invertebrate species have been reported from eelgrass beds along the east coast (Thayer et al. 1984). SAV is federally designated as Essential Fish Habitat by the South Atlantic Fishery Management Council (SAFMC) for red drum, Penaeid shrimp, and species in the snapper-grouper complex. Bay scallops occur almost exclusively in SAV beds (Thayer et al. 1984). Although SAV has not been designated as Essential Fish Habitat (EFH) for bay scallops because it is a state-managed species, it provides numerous beneficial ecological functions.

SAV enhances the entire ecosystem by stabilizing and trapping sediment, reducing wave energy, and cycling nutrients within the system (Thayer et al. 1984). The three-dimensional structure provides a surface of attachment for small plants and animals to attach to and provides a safe refuge and foraging area for a large number of juvenile fish and invertebrates (SAFMC 1998). Beds of SAV also produce large quantities of